

IN THE CLAIMS:

Please amend the claims as follows:

1. (Previously Presented) A flame detection apparatus comprising a focused array based sensor responsive to radiation having a predefined wavelength for generating an image of the infra-red radiation emitted within a viewing region, means for measuring the spectral ratio of the intensity of radiation having a first wavelength emitted within the viewing region to the intensity of radiation having a second wavelength emitted within the region, wherein the means for measuring the spectral ratio includes an unfocussed volumetric sensor which measures infrared radiation emitted within the viewing region having said second wavelength, processing means which analyzes the outputs of said image generating and spectral ratio measuring means for responses indicative of the presence of a flame and a second focused array based sensor responsive to radiation having a predefined wavelength which is different from that of said first focused array based sensor.
2. (Cancelled)
3. (Previously Presented) A flame detection apparatus according to claim 1, wherein the array based sensor is sensitive to radiation having a wavelength within the range of substantially $2\ \mu\text{m}$ to $15\ \mu\text{m}$.
4. (Previously Presented) A flame detection apparatus according to claim 3, wherein the array based sensor is sensitive to radiation having a wavelength of substantially $4.3\ \mu\text{m}$.
5. (Cancelled)
6. (Previously Presented) A flame detection apparatus according to claim 1, wherein the second wavelength is substantially $5.5\ \mu\text{m}$.
7. – 11. (Cancelled)

12. (Original) A flame detector according to claim 1, further including at least one sensor for monitoring at least one of the actual temperature, the rate of rise of temperature and the vibration within the monitored area.

13. (Previously Presented) A method of detecting a flame comprising the steps of measuring the intensity of radiation having a first wavelength within a monitored region, measuring the intensity of radiation having a second wavelength within the monitored region, calculating the spectral ratio of the intensity of the radiation having the first wavelength to the intensity of the radiation having the second wavelength and comparing it to a predefined threshold value indicative of the presence of a flame, generating an image of the infra-red radiation within the monitored region, analyzing the image for features indicative of the presence of a flame within the monitored region, and activating an alarm if the results of a spectral ratio analysis and the image analysis fit a predefined profile indicative of the presence of a flame and measuring the intensity of at least one of the short wavelength radiation and visible radiation within the monitored area and analyzing the profile thereof for characteristics indicative of a non-flame radiation source.

14. (Previously Presented) A method of detecting a flame according to claim 13, wherein said first wavelength is $4.3\ \mu\text{m}$.

15. (Previously Presented) A method of detecting a flame according to claim 13, wherein said second wavelength is $5.5\ \mu\text{m}$.

16. (Previously Presented) A method of detecting a flame according to claim 13, wherein said analysis of the image includes discerning the number of separate dynamic radiation sources present in the viewing area and analyzing at least one of the shape, movement and intensity of each source for predefined qualities similar to a flame.

17. (Previously Presented) A method of detecting a flame according to claim 13, further including the steps of measuring at least one of the actual temperature, the rate of rise of temperature and the vibration within the monitored region and

analyzing characteristics thereof for behavior indicative of the presence of a flame.

18. (Cancelled)

19. (Previously Presented) A flame detection apparatus comprising a focused array based sensor responsive to radiation having a predefined wavelength for generating an image of the infra-red radiation emitted within a viewing region, means for measuring the spectral ratio of the intensity of radiation having a first wavelength emitted within the viewing region to the intensity of radiation having a second wavelength emitted within the region, and processing means which analyzes the outputs of said image generating and spectral ratio measuring means for responses indicative of the presence of a flame, wherein the means for measuring the spectral ratio includes an unfocussed volumetric sensor which measures infrared radiation emitted within the viewing region having said second wavelength and a second unfocussed volumetric sensor which measures infra-red radiation emitted within the viewing region having said first wavelength.